Customer No. 30223 **PATENT**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application Of: Douglas U. Mennie

Application No.: Not Assigned

Filed: February 19, 2002

For: METHOD AND APPARATUS FOR DISCRIMINATING AND COUNTING DOCUMENTS

Atty. Docket No.: 47171-00300USC2

PRIOR APPLICATION

Examiner: Shapiro

Group Art Unit: 3652

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
Washington, D.C. 20231

Attn: Box Patent Application

Dear Sir:

This application is a continuation of U.S. Application No. 09/837,500, filed April 18, 2001. Prior to examining the subject application, please enter the following amendments.

IN THE SPECIFICATION:

Please amend page 1, line 2 -- Page 2, line 5 as follows:

This application is a continuation of U.S. Application No. 09/837,500, filed April 18, 2001; which is a complete application claiming the benefit of U.S. Application No. 08/834,746, filed April 4, 1997, now issued as U.S. Patent No. 6,220,419; which is a continuation-in-part of [pending] United States patent application Serial No. 08/450,505 filed May 26, 1995, for "Method And Apparatus For Discriminating and Counting Documents", now issued as U.S. Patent No. 5,687,963; [pending] United States patent application Serial No. 08/340,031 filed November 14, 1994, for "Method And Apparatus For Discriminating and Counting Documents",

now issued as U.S. Patent No. 5,815,592; [pending] United States patent application Serial No. 08/573,392 filed December 15, 1995 for a "Method and Apparatus for Discriminating and Counting Documents", now issued as U.S. Patent No. 5,790,697; and [pending] United States patent application Serial No. 08/287,882 filed August 9, 1994 for a "Method and Apparatus for Document Identification", now issued as U.S. Patent No. 5,652,802.

United States patent application Serial No. 08/450,505 is a continuation of United States patent application Serial No. 08/340,031 which is in turn a continuation-in-part of [pending] United States patent application Serial No. 08/243,807 filed May 16, 1994, for "Method And Apparatus For Currency Discrimination", now issued as U.S. Patent No. 5,633,949 and United States patent application Serial No. 08/207,592 filed March 8, 1994 for "Method and Apparatus for Currency Discrimination", now issued as United States Patent No. 5,467,406.

United States patent application Serial No. 08/573,392 filed December 15, 1995 for a "Method and Apparatus for Discriminating and Counting Documents" is a continuation-in-part of the following United States patent applications:

Serial No. 08/399,854 filed March 7, 1995 for a "Method and Apparatus For Discriminating and Counting Documents", [pending]now issued as U.S. Patent No. 5,875,259; Serial No. 08/394,752 filed February 27, 1995 for a "Method of Generating Modified Patterns and Method and Apparatus for Using the Same in a Currency Identification System", [pending]now issued as U.S. Patent No. 5,724,438; Serial No. 08/362,848 filed December 22, 1994, for a "Method And Apparatus For Discriminating and Counting Documents", [pending]now issued as U.S. Patent No. 5,870,487; Serial No. 08/340,031 filed November 14, 1994, for a "Method And Apparatus For Discriminating and Counting Documents"[, pending]; Serial No. 08/317,349 filed October 4, 1994, for a "Method And Apparatus For Authenticating Documents Including Currency", [pending]now issued as U.S. Patent No. 5,640,463; Serial No. 08/287,882 filed August 9, 1994 for a "Method and Apparatus for Document Identification"[, pending]; Serial No. 08/243,807 filed May 16, 1994, for "Method And Apparatus For Currency Discrimination"[, pending]; and Serial No. 08/226,660 filed April 12, 1994, for "Method And Apparatus For Currency Discrimination", pending.

IN THE CLAIMS:

Please cancel claims 2-28 and add new claims 29-67 as indicated below.

29. (New) A currency evaluation device for receiving a stack of currency bills and rapidly evaluating all the bills in the stack, said device comprising:

an input receptacle for receiving a stack of bills to be evaluated;

a single output receptacle for receiving said bills after said bills have been evaluated;

a transport mechanism for transporting said bills, one at a time, from said input receptacle to said output receptacle along a transport path;

a discriminating unit for evaluating said bills, said discriminating unit comprising two detectors positioned along said transport path between said input receptacle and said output receptacle, said detectors being disposed on opposite sides of said transport path so as to be disposed adjacent to first and second opposing surfaces of said bills, said discriminating unit counting and determining the denomination of said bills, wherein the discriminating unit is adapted to determine the denomination of U.S. currency bills; and

means for flagging a bill when the denomination of said bill is not determined by said discriminating unit.

30. (New) A currency evaluation device for receiving a stack of currency bills and rapidly evaluating all the bills in the stack, said device comprising:

an input receptacle for receiving a stack of bills to be evaluated;

a single output receptacle for receiving said bills after said bills have been evaluated;

a transport mechanism for transporting said bills, one at a time, from said input receptacle to said output receptacle along a transport path;

a discriminating unit for evaluating said bills, said discriminating unit comprising two detectors positioned along said transport path between said input receptacle and said output receptacle, said detectors being disposed on opposite sides of said transport path so as to be disposed adjacent to first and second opposing surfaces of said bills, said discriminating unit counting and determining the denomination of said bills; and

means for flagging a bill when the denomination of said bill is not determined by said discriminating unit;

wherein the input receptacle is adapted to receive a stack of bills having a plurality of denominations and the discriminating unit is adapted to determine the denomination of bills having a plurality of denominations.

31. (New) The currency evaluation device of claim 30 wherein the discriminating unit is adapted to determine the denomination of currency bills having the same dimensions.

32. (New) The currency evaluation device of claim 30 wherein the input receptacle is adapted to receive a stack of bills having a plurality of U.S. currency denominations and the discriminating unit is adapted to determine the denomination of bills having a plurality of U.S. currency denominations.

33. (New) The currency evaluation device of claim 32 wherein said transport mechanism transports bills at a rate of at least about 800 bills per minute.

34. (New) The currency evaluation device of claim 32 wherein said transport mechanism transports bills at a rate of at least about 1000 bills per minute.

35. (New) A currency evaluation device for receiving a stack of currency bills and rapidly evaluating all the bills in the stack, said device comprising:

an input receptacle for receiving a stack of bills to be evaluated;

a single output receptacle for receiving said bills after said bills have been evaluated;

a transport mechanism for transporting said bills, one at a time, from said input receptacle to said output receptacle along a transport path;

a discriminating unit for evaluating said bills, said discriminating unit comprising two detectors positioned along said transport path between said input receptacle and said output receptacle, said detectors being disposed on opposite sides of said transport path so as to be disposed adjacent to first and second opposing surfaces of said bills, said discriminating unit counting and determining the denomination of said bills; and

means for flagging a bill when the denomination of said bill is not determined by said discriminating unit;

wherein said means for flagging causes said transport mechanism to halt with said bill whose denomination has not been determined being the last bill transported to said output receptacle;

wherein said transport mechanism transports bills at a rate of at least about 800 bills per minute; and

wherein the input receptacle is adapted to receive a stack of bills having a plurality of denominations and the discriminating unit is adapted to determine the denomination of bills having a plurality of denominations.

36. (New) The currency evaluation device of claim 35 wherein the optical scanning head scans each bill using reflected light.

37. (New) The currency evaluation device of claim 35 wherein the discriminating unit is adapted to determine the denomination of currency bills having the same dimensions.

38. (New) The currency evaluation device of claim 35 wherein the input receptacle is adapted to receive a stack of bills having a plurality of U.S. currency denominations and the discriminating unit is adapted to determine the denomination of bills having a plurality of U.S. currency denominations.

39. (New) A currency evaluation device for receiving a stack of currency bills and rapidly evaluating all the bills in the stack, said device comprising:

an input receptacle for receiving a stack of bills to be evaluated;

a single output receptacle for receiving said bills after said bills have been evaluated;

a transport mechanism for transporting said bills, one at a time, from said input receptacle to said output receptacle along a transport path;

a discriminating unit for evaluating said bills, said discriminating unit comprising two detectors positioned along said transport path between said input receptacle and said output

receptacle, said detectors being disposed on opposite sides of said transport path so as to be disposed adjacent to first and second opposing surfaces of said bills, said discriminating unit counting and determining the denomination of said bills; and

means for flagging a bill when the denomination of said bill is not determined by said discriminating unit;

wherein said means for flagging causes said transport mechanism to halt with said bill whose denomination has not been determined being the last bill transported to said output receptacle;

wherein said transport mechanism transports bills at a rate of at least about 800 bills per minute; and

wherein the discriminating unit is adapted to determine the denomination of U.S. currency bills.

40. (New) A document evaluation device for receiving a stack of documents and rapidly evaluating all the documents in the stack, said device comprising:

an input receptacle for receiving a stack of documents to be evaluated, genuine ones of said documents each having one of a plurality of images thereon, said plurality of images defining a plurality of document types;

a single output receptacle for receiving said documents after said documents have been evaluated;

a transport mechanism for transporting said documents, one at a time, from said input receptacle to said output receptacle along a transport path;

a discriminating unit for evaluating said documents, said discriminating unit comprising two detectors positioned along said transport path between said input receptacle and said output receptacle, said detectors being disposed on opposite sides of said transport path so as to be disposed adjacent to first and second opposing surfaces of said documents, said discriminating unit being capable of distinguishing among said plurality of document types by scanning the image on each of said documents, said discriminating unit counting and determining the document type of said documents; and

means for flagging a document when the type of said document is not determined by said discriminating unit;

wherein the discriminating unit is adapted to determine the denomination of U.S. currency bills.

41. (New) A document evaluation device for receiving a stack of documents and rapidly evaluating all the documents in the stack, said device comprising:

an input receptacle for receiving a stack of documents to be evaluated, genuine ones of said documents each having one of a plurality of images thereon, said plurality of images defining a plurality of document types;

a single output receptacle for receiving said documents after said documents have been evaluated;

a transport mechanism for transporting said documents, one at a time, from said input receptacle to said output receptacle along a transport path;

a discriminating unit for evaluating said documents, said discriminating unit comprising two detectors positioned along said transport path between said input receptacle and said output receptacle, said detectors being disposed on opposite sides of said transport path so as to be disposed adjacent to first and second opposing surfaces of said documents, said discriminating unit being capable of distinguishing among said plurality of document types by scanning the image on each of said documents, said discriminating unit counting and determining the document type of said documents; and

means for flagging a document when the type of said document is not determined by said discriminating unit;

wherein the input receptacle is adapted to receive a stack of bills having a plurality of denominations and the discriminating unit is adapted to determine the denomination of bills having a plurality of denominations.

42. (New) The document evaluation device of claim 41 wherein the detectors scans each bill using reflected light.

43. (New) The document evaluation device of claim 42 wherein said means for flagging causes said transport mechanism to halt with said document whose type has not been determined being the last document transported to said output receptacle and wherein said transport mechanism transports bills at a rate of at least about 800 bills per minute.

44. (New) The document evaluation device of claim 41 wherein the discriminating unit is adapted to determine the denomination of currency bills having the same dimensions.

45. (New) The currency evaluation device of claim 41 wherein the input receptacle is adapted to receive a stack of bills having a plurality of U.S. currency denominations and the discriminating unit is adapted to determine the denomination of bills having a plurality of U.S. currency denominations.

46. (New) The document evaluation device of claim 45 wherein said means for flagging causes said transport mechanism to halt with said document whose type has not been determined being the last document transported to said output receptacle and wherein said transport mechanism transports bills at a rate of at least about 800 bills per minute.

47. (New) A method of counting and discriminating currency bills of different denominations using a currency evaluation device comprising:

receiving a stack of bills to be evaluated in an input receptacle of the evaluation device;

transporting, under control of the evaluation device, the bills, one at a time, from the input receptacle to a single output receptacle of the evaluation device along a transport path;

counting and determining the denomination of the bills under control of the evaluation device using a denomination discriminating unit comprising two detectors positioned along the transport path and disposed on opposite sides of the transport path so as to be disposed adjacent to first and second opposing surfaces of the bills; and

flagging a bill when the denomination of the bill can not be determined under control of the evaluation device.

48. (New) The method of claim 47 wherein flagging a bill comprises halting the transporting of the bills in the stack with the bill whose denomination has not been determined being the last bill transported to the output receptacle.

49. (New) The method of claim 48 wherein transporting and determining the denomination of bills is performed at a rate of at least about 1000 bills per minute.

50. (New) The method of claim 48 wherein determining the denomination of the bills comprises scanning by the detectors at least a preselected segment of each side of each bill transported between the input and output receptacles, and producing output signals representing the scanned images.

51. (New) The method of claim 50 the scanning detects reflected light.

52. (New) The method of claim 51 wherein transporting and determining the denomination of bills is performed at a rate of at least about 800 bills per minute.

53. (New) The method of claim 52 further comprising removing, under the control of an operator of the evaluation device, the bill whose denomination has not been determined from the evaluation device after transporting has been halted.

54. (New) The method of claim 52 wherein the stack of bills received in the input receptacle have a plurality of U.S. currency denominations and the discriminating unit determines the denomination of bills having a plurality of U.S. currency denominations.

55. (New) The method of claim 47 wherein determining the denomination of the bills comprises scanning by the detectors at least a preselected segment of each side of each bill transported between the input and output receptacles, and producing an output signal representing the scanned images.

56. (New) The method of claim 47 wherein transporting and determining the denomination of bills is performed at a rate of at least about 800 bills per minute.

57. (New) The method of claim 47 wherein transporting and determining the denomination of bills is performed at a rate of at least about 1000 bills per minute.

58. (New) The method of claim 57 wherein the stack of bills received in the input receptacle have a plurality of U.S. currency denominations and the discriminating unit determines the denomination of bills having a plurality of U.S. currency denominations.

59. (New) The method of claim 47 wherein flagging comprises halting the transporting of bills.

60. (New) The method of claim 59 further comprising removing, under the control of an operator of the evaluation device, the bill whose denomination has not been determined from the evaluation device after transporting has been halted.

61. (New) The method of claim 60 further comprising resuming transporting bills after the bill whose denomination has not been determined has been removed from the evaluation device.

62. (New) A method of counting and discriminating documents of different types using a document evaluation device comprising:

receiving a stack of documents to be evaluated in an input receptacle of the evaluation device, genuine ones of the documents each having one of a plurality of images thereon, the plurality of images defining a plurality of document types;

transporting, under control of the evaluation device, the documents, one at a time, from the input receptacle to a single output receptacle of the evaluation device;

counting and determining the type of the documents under control of the evaluation device, the evaluation device distinguishing among the plurality of document types by scanning the image on each side of the documents; and

flagging a document when the type of the document can not be determined under control of the evaluation device.

63. (New) The method of claim 62 wherein flagging comprises halting the transporting of the documents in the stack with the document whose type has not been determined being the last document transported to the output receptacle.

64. (New) The method of claim 62 wherein the stack of documents received in the input receptacle comprise U.S. currency having a plurality of U.S. currency denominations and the evaluation device determines the denomination of bills having a plurality of U.S. currency denominations.

65. (New) A currency counting and evaluation device for receiving a stack of currency bills, rapidly counting and evaluating all the bills in the stack, and then re-stacking the bills, the device comprising:

a feed mechanism for receiving a stack of currency bills and feeding the bills, one at a time, to a bill transport mechanism;

the bill transport mechanism transporting bills from the feed mechanism to a stacking station along a transport path, at a rate in excess of about 800 bills per minute;

a first optical scanning head located on a first side of the transport path between the feed mechanism and the stacking station for scanning a first preselected segment of a central portion of a first side of each bill transported between the stations by the transport mechanism, the first scanning head including at least one light source for illuminating a strip of the preselected segment of a bill, and at least one detector for receiving light from the illuminated strip on the bill and producing a first output signal representing variations in the intensity of the received light;

a second optical scanning head located on a second side of the transport path between the feed mechanism and the stacking station for scanning a second preselected segment of a central portion of a second side of each bill transported between the stations by the transport mechanism, the second scanning head including at least one light source for illuminating a strip of the preselected segment of a bill, and at least one detector for receiving light from the illuminated strip on the bill and producing a second output signal representing variations in the intensity of the received light;

means for sampling at least one of the output signals at preselected intervals as a bill is moved across the scanning head, each of the output signal samples being proportional to the intensity of the light received from a different strip of one of the preselected segments of a bill;

a memory for storing characteristic signal samples produced by scanning the preselected segments of bills of different denominations with the scanning head and sampling the output signal at the preselected intervals, each of the stored signal samples being proportional to the intensity of the light received from a different strip of a preselected segment of a bill; and

signal processing means for receiving the signal samples and (1) determining the denomination of each scanned bill by comparing the stored signal samples with the output signal samples produced by the scanning of each bill with the scanning head, (2) counting the number of scanned bills of each denomination, and (3) accumulating the cumulative value of the scanned bills of each denomination.

66. (New) The currency counting and evaluation device of claim 65 wherein the feed mechanism feeds the bills in the direction of the narrow dimension of the bills;

the transport mechanism transports bills in the direction of the narrow dimension of the bills; and

the first and second scanning heads comprise first and second stationary optical scanning heads and the detectors of the first and second scanning heads receive reflected light.

67. (New) The currency counting and evaluation device of claim 66 wherein the signal processing means is capable of determining the denomination of each scanned bill by comparing stored signal samples and output signal samples associated only with scanning the central portion of each bill.

REMARKS

Claims 1 and 29-67 remain in the application for prosecution. Claims 2-28 have been cancelled. Submitted herewith is a clean set of pending claims.

The Applicants believe the claims are in condition for allowance.

If there are any matters which may be resolved or clarified through a telephone interview, the Examiner is respectfully requested to contact the Applicants' undersigned attorney at the number indicated.

Respectfully submitted,

Date: February 19, 2002

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Clean Paragraphs of Specification, Page 1, line 2-- Page 2, line 5

This application is a continuation of U.S. Application No. 09/837,500, filed April 18, 2001; which is a complete application claiming the benefit of U.S. Application No. 08/834,746, filed April 4, 1997, now issued as U.S. Patent No. 6,220,419; which is a continuation-in-part of United States patent application Serial No. 08/450,505 filed May 26, 1995, for "Method And Apparatus For Discriminating and Counting Documents", now issued as U.S. Patent No. 5,687,963; United States patent application Serial No. 08/340,031 filed November 14, 1994, for "Method And Apparatus For Discriminating and Counting Documents", now issued as U.S. Patent No. 5,815,592; United States patent application Serial No. 08/573,392 filed December 15, 1995 for a "Method and Apparatus for Discriminating and Counting Documents", now issued as U.S. Patent No. 5,790,697; and United States patent application Serial No. 08/287,882 filed August 9, 1994 for a "Method and Apparatus for Document Identification", now issued as U.S. Patent No. 5,652,802.

United States patent application Serial No. 08/450,505 is a continuation of United States patent application Serial No. 08/340,031 which is in turn a continuation-in-part of United States patent application Serial No. 08/243,807 filed May 16, 1994, for "Method And Apparatus For Currency Discrimination", now issued as U.S. Patent No. 5,633,949 and United States patent application Serial No 08/207,592 filed March 8, 1994 for "Method and Apparatus for Currency Discrimination", now issued as United States Patent No. 5,467,406.

United States patent application Serial No. 08/573,392 filed December 15, 1995 for a "Method and Apparatus for Discriminating and Counting Documents" is a continuation-in-part of the following United States patent applications:

Serial No. 08/399,854 filed March 7, 1995 for a "Method and Apparatus For Discriminating and Counting Documents", now issued as U.S. Patent No. 5,875,259; Serial No. 08/394,752 filed February 27, 1995 for a "Method of Generating Modified Patterns and Method and Apparatus for Using the Same in a Currency Identification System", now issued as U.S. Patent No. 5,724,438; Serial No. 08/362,848 filed December 22, 1994, for a "Method And Apparatus For Discriminating and Counting Documents", now issued as U.S. Patent No. 5,870,487; Serial No. 08/340,031 filed November 14, 1994, for a "Method And Apparatus For Discriminating and Counting Documents"; Serial No. 08/317,349 filed October 4, 1994, for a

"Method And Apparatus For Authenticating Documents Including Currency", now issued as U.S. Patent No. 5,640,463; Serial No. 08/287,882 filed August 9, 1994 for a "Method and Apparatus for Document Identification"; Serial No. 08/243,807 filed May 16, 1994, for "Method And Apparatus For Currency Discrimination"; and Serial No. 08/226,660 filed April 12, 1994, for "Method And Apparatus For Currency Discrimination", pending.

Clean Set Of Pending Claims (2/15/02)

1. A currency evaluation device for receiving a stack of currency bills and rapidly evaluating all the bills in the stack, said device comprising:

an input receptacle for receiving a stack of bills to be evaluated;

a single output receptacle for receiving said bills after said bills have been evaluated;

a transport mechanism for transporting said bills, one at a time, from said input receptacle to said output receptacle along a transport path;

a discriminating unit for evaluating said bills, said discriminating unit comprising two detectors positioned along said transport path between said input receptacle and said output receptacle, said detectors being disposed on opposite sides of said transport path so as to be disposed adjacent to first and second opposing surfaces of said bills, said discriminating unit counting and determining the denomination of said bills; and

means for flagging a bill when the denomination of said bill is not determined by said discriminating unit.

29. (New) A currency evaluation device for receiving a stack of currency bills and rapidly evaluating all the bills in the stack, said device comprising:

an input receptacle for receiving a stack of bills to be evaluated;

a single output receptacle for receiving said bills after said bills have been evaluated;

a transport mechanism for transporting said bills, one at a time, from said input receptacle to said output receptacle along a transport path;

a discriminating unit for evaluating said bills, said discriminating unit comprising two detectors positioned along said transport path between said input receptacle and said output receptacle, said detectors being disposed on opposite sides of said transport path so as to be disposed adjacent to first and second opposing surfaces of said bills, said discriminating unit counting and determining the denomination of said bills, wherein the discriminating unit is adapted to determine the denomination of U.S. currency bills; and

means for flagging a bill when the denomination of said bill is not determined by said discriminating unit.

30. (New) A currency evaluation device for receiving a stack of currency bills and rapidly evaluating all the bills in the stack, said device comprising:

an input receptacle for receiving a stack of bills to be evaluated;

a single output receptacle for receiving said bills after said bills have been evaluated;

a transport mechanism for transporting said bills, one at a time, from said input receptacle to said output receptacle along a transport path;

a discriminating unit for evaluating said bills, said discriminating unit comprising two detectors positioned along said transport path between said input receptacle and said output receptacle, said detectors being disposed on opposite sides of said transport path so as to be disposed adjacent to first and second opposing surfaces of said bills, said discriminating unit counting and determining the denomination of said bills; and

means for flagging a bill when the denomination of said bill is not determined by said discriminating unit;

wherein the input receptacle is adapted to receive a stack of bills having a plurality of denominations and the discriminating unit is adapted to determine the denomination of bills having a plurality of denominations.

31. The currency evaluation device of claim 30 wherein the discriminating unit is adapted to determine the denomination of currency bills having the same dimensions.

32. The currency evaluation device of claim 30 wherein the input receptacle is adapted to receive a stack of bills having a plurality of U.S. currency denominations and the discriminating unit is adapted to determine the denomination of bills having a plurality of U.S. currency denominations.

33. The currency evaluation device of claim 32 wherein said transport mechanism transports bills at a rate of at least about 800 bills per minute.

34. The currency evaluation device of claim 32 wherein said transport mechanism transports bills at a rate of at least about 1000 bills per minute.

35. (New) A currency evaluation device for receiving a stack of currency bills and rapidly evaluating all the bills in the stack, said device comprising:

an input receptacle for receiving a stack of bills to be evaluated;

a single output receptacle for receiving said bills after said bills have been evaluated;

a transport mechanism for transporting said bills, one at a time, from said input receptacle to said output receptacle along a transport path;

a discriminating unit for evaluating said bills, said discriminating unit comprising two detectors positioned along said transport path between said input receptacle and said output receptacle, said detectors being disposed on opposite sides of said transport path so as to be disposed adjacent to first and second opposing surfaces of said bills, said discriminating unit counting and determining the denomination of said bills; and

means for flagging a bill when the denomination of said bill is not determined by said discriminating unit;

wherein said means for flagging causes said transport mechanism to halt with said bill whose denomination has not been determined being the last bill transported to said output receptacle;

wherein said transport mechanism transports bills at a rate of at least about 800 bills per minute; and

wherein the input receptacle is adapted to receive a stack of bills having a plurality of denominations and the discriminating unit is adapted to determine the denomination of bills having a plurality of denominations.

36. The currency evaluation device of claim 35 wherein the optical scanning head scans each bill using reflected light.

37. The currency evaluation device of claim 35 wherein the discriminating unit is adapted to determine the denomination of currency bills having the same dimensions.

38. The currency evaluation device of claim 35 wherein the input receptacle is adapted to receive a stack of bills having a plurality of U.S. currency denominations and the discriminating unit is adapted to determine the denomination of bills having a plurality of U.S. currency denominations.

39. (New) A currency evaluation device for receiving a stack of currency bills and rapidly evaluating all the bills in the stack, said device comprising:

an input receptacle for receiving a stack of bills to be evaluated;

a single output receptacle for receiving said bills after said bills have been evaluated;

a transport mechanism for transporting said bills, one at a time, from said input receptacle to said output receptacle along a transport path;

a discriminating unit for evaluating said bills, said discriminating unit comprising two detectors positioned along said transport path between said input receptacle and said output receptacle, said detectors being disposed on opposite sides of said transport path so as to be disposed adjacent to first and second opposing surfaces of said bills, said discriminating unit counting and determining the denomination of said bills; and

means for flagging a bill when the denomination of said bill is not determined by said discriminating unit;

wherein said means for flagging causes said transport mechanism to halt with said bill whose denomination has not been determined being the last bill transported to said output receptacle;

wherein said transport mechanism transports bills at a rate of at least about 800 bills per minute; and

wherein the discriminating unit is adapted to determine the denomination of U.S. currency bills.

40. (New) A document evaluation device for receiving a stack of documents and rapidly evaluating all the documents in the stack, said device comprising:

an input receptacle for receiving a stack of documents to be evaluated, genuine ones of said documents each having one of a plurality of images thereon, said plurality of images defining a plurality of document types;

a single output receptacle for receiving said documents after said documents have been evaluated;

a transport mechanism for transporting said documents, one at a time, from said input receptacle to said output receptacle along a transport path;

a discriminating unit for evaluating said documents, said discriminating unit comprising two detectors positioned along said transport path between said input receptacle and said output receptacle, said detectors being disposed on opposite sides of said transport path so as to be disposed adjacent to first and second opposing surfaces of said documents, said discriminating unit being capable of distinguishing among said plurality of document types by scanning the image on each of said documents, said discriminating unit counting and determining the document type of said documents; and

means for flagging a document when the type of said document is not determined by said discriminating unit;

wherein the discriminating unit is adapted to determine the denomination of U.S. currency bills.

41. (New) A document evaluation device for receiving a stack of documents and rapidly evaluating all the documents in the stack, said device comprising:

an input receptacle for receiving a stack of documents to be evaluated, genuine ones of said documents each having one of a plurality of images thereon, said plurality of images defining a plurality of document types;

a single output receptacle for receiving said documents after said documents have been evaluated;

a transport mechanism for transporting said documents, one at a time, from said input receptacle to said output receptacle along a transport path;

a discriminating unit for evaluating said documents, said discriminating unit comprising two detectors positioned along said transport path between said input receptacle and said output receptacle, said detectors being disposed on opposite sides of said transport path so as to be disposed adjacent to first and second opposing surfaces of said documents, said discriminating unit being capable of distinguishing among said plurality of document types by scanning the image on each of said documents, said discriminating unit counting and determining the document type of said documents; and

means for flagging a document when the type of said document is not determined by said discriminating unit;

wherein the input receptacle is adapted to receive a stack of bills having a plurality of denominations and the discriminating unit is adapted to determine the denomination of bills having a plurality of denominations.

42. The document evaluation device of claim 41 wherein the detectors scans each bill using reflected light.

43. The document evaluation device of claim 42 wherein said means for flagging causes said transport mechanism to halt with said document whose type has not been determined being the last document transported to said output receptacle and wherein said transport mechanism transports bills at a rate of at least about 800 bills per minute.

44. The document evaluation device of claim 41 wherein the discriminating unit is adapted to determine the denomination of currency bills having the same dimensions.

45. The currency evaluation device of claim 41 wherein the input receptacle is adapted to receive a stack of bills having a plurality of U.S. currency denominations and the discriminating unit is adapted to determine the denomination of bills having a plurality of U.S. currency denominations.

46. The document evaluation device of claim 45 wherein said means for flagging causes said transport mechanism to halt with said document whose type has not been determined being the last document transported to said output receptacle and wherein said transport mechanism transports bills at a rate of at least about 800 bills per minute.

47. (New) A method of counting and discriminating currency bills of different denominations using a currency evaluation device comprising:

receiving a stack of bills to be evaluated in an input receptacle of the evaluation device;

transporting, under control of the evaluation device, the bills, one at a time, from the input receptacle to a single output receptacle of the evaluation device along a transport path;

counting and determining the denomination of the bills under control of the evaluation device using a denomination discriminating unit comprising two detectors positioned along the transport path and disposed on opposite sides of the transport path so as to be disposed adjacent to first and second opposing surfaces of the bills; and

flagging a bill when the denomination of the bill can not be determined under control of the evaluation device.

48. (New) The method of claim 47 wherein flagging a bill comprises halting the transporting of the bills in the stack with the bill whose denomination has not been determined being the last bill transported to the output receptacle.

49. (New) The method of claim 48 wherein transporting and determining the denomination of bills is performed at a rate of at least about 1000 bills per minute.

50. (New) The method of claim 48 wherein determining the denomination of the bills comprises scanning by the detectors at least a preselected segment of each side of each bill transported between the input and output receptacles, and producing output signals representing the scanned images.

51. (New) The method of claim 50 the scanning detects reflected light.

52. (New) The method of claim 51 wherein transporting and determining the denomination of bills is performed at a rate of at least about 800 bills per minute.

53 (New) The method of claim 52 further comprising removing, under the control of an operator of the evaluation device, the bill whose denomination has not been determined from the evaluation device after transporting has been halted.

54. (New) The method of claim 52 wherein the stack of bills received in the input receptacle have a plurality of U.S. currency denominations and the discriminating unit determines the denomination of bills having a plurality of U S. currency denominations.

55. (New) The method of claim 47 wherein determining the denomination of the bills comprises scanning by the detectors at least a preselected segment of each side of each bill transported between the input and output receptacles, and producing an output signal representing the scanned images.

56. (New) The method of claim 47 wherein transporting and determining the denomination of bills is performed at a rate of at least about 800 bills per minute.

57. (New) The method of claim 47 wherein transporting and determining the denomination of bills is performed at a rate of at least about 1000 bills per minute.

58. (New) The method of claim 57 wherein the stack of bills received in the input receptacle have a plurality of U.S. currency denominations and the discriminating unit determines the denomination of bills having a plurality of U.S. currency denominations.

59. (New) The method of claim 47 wherein flagging comprises halting the transporting of bills.

60. (New) The method of claim 59 further comprising removing, under the control of an operator of the evaluation device, the bill whose denomination has not been determined from the evaluation device after transporting has been halted.

61. (New) The method of claim 60 further comprising resuming transporting bills after the bill whose denomination has not been determined has been removed from the evaluation device.

62. (New) A method of counting and discriminating documents of different types using a document evaluation device comprising:

receiving a stack of documents to be evaluated in an input receptacle of the evaluation device, genuine ones of the documents each having one of a plurality of images thereon, the plurality of images defining a plurality of document types;

transporting, under control of the evaluation device, the documents, one at a time, from the input receptacle to a single output receptacle of the evaluation device;

counting and determining the type of the documents under control of the evaluation device, the evaluation device distinguishing among the plurality of document types by scanning the image on each side of the documents; and

flagging a document when the type of the document can not be determined under control of the evaluation device.

63. (New) The method of claim 62 wherein flagging comprises halting the transporting of the documents in the stack with the document whose type has not been determined being the last document transported to the output receptacle.

64. (New) The method of claim 62 wherein the stack of documents received in the input receptacle comprise U.S. currency having a plurality of U.S. currency denominations and the evaluation device determines the denomination of bills having a plurality of U.S. currency denominations.

65. (New) A currency counting and evaluation device for receiving a stack of currency bills, rapidly counting and evaluating all the bills in the stack, and then re-stacking the bills, the device comprising:

a feed mechanism for receiving a stack of currency bills and feeding the bills, one at a time, to a bill transport mechanism;

the bill transport mechanism transporting bills from the feed mechanism to a stacking station along a transport path, at a rate in excess of about 800 bills per minute;

a first optical scanning head located on a first side of the transport path between the feed mechanism and the stacking station for scanning a first preselected segment of a central portion of a first side of each bill transported between the stations by the transport mechanism, the first scanning head including at least one light source for illuminating a strip of the preselected segment of a bill, and at least one detector for receiving light from the illuminated strip on the bill and producing a first output signal representing variations in the intensity of the received light;

a second optical scanning head located on a second side of the transport path between the feed mechanism and the stacking station for scanning a second preselected segment of a central portion of a second side of each bill transported between the stations by the transport mechanism, the second scanning head including at least one light source for illuminating a strip of the preselected segment of a bill, and at least one detector for receiving light from the illuminated strip on the bill and producing a second output signal representing variations in the intensity of the received light;

means for sampling at least one of the output signals at preselected intervals as a bill is moved across the scanning head, each of the output signal samples being proportional to the intensity of the light received from a different strip of one of the preselected segments of a bill;

a memory for storing characteristic signal samples produced by scanning the preselected segments of bills of different denominations with the scanning head and sampling the output signal at the preselected intervals, each of the stored signal samples being proportional to the intensity of the light received from a different strip of a preselected segment of a bill; and

signal processing means for receiving the signal samples and (1) determining the denomination of each scanned bill by comparing the stored signal samples with the output signal samples produced by the scanning of each bill with the scanning head, (2) counting the number of scanned bills of each denomination, and (3) accumulating the cumulative value of the scanned bills of each denomination.

66. (New) The currency counting and evaluation device of claim 65 wherein the feed mechanism feeds the bills in the direction of the narrow dimension of the bills;

the transport mechanism transports bills in the direction of the narrow dimension of the bills; and

the first and second scanning heads comprise first and second stationary optical scanning heads and the detectors of the first and second scanning heads receive reflected light.

67. (New) The currency counting and evaluation device of claim 66 wherein the signal processing means is capable of determining the denomination of each scanned bill by comparing stored signal samples and output signal samples associated only with scanning the central portion of each bill.

Customer No.: 30223 PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Douglas U. Mennie

Serial No.: Unknown

Filed: February 19, 2002

For: Method and Apparatus for Discriminating and Counting Documents

Group Art Unit: Unknown

Examiner: Unknown

Attorney Docket No.: 47171-00300USC2

SUBMISSION OF FORMAL DRAWINGS

Assistant Commissioner
For Patents
Washington, DC 20231

Attn: Official Draftperson

Dear Sir:

CERTIFICATE OF MAILING
37 C.F.R. 1.8
I hereby certify that this correspondence is being deposited with the U.S. Postal Service as First Class Mail in an envelope addressed to: Assistant Commissioner of Patents, Attn: Official Draftperson, Washington, DC 20231, on the date below:

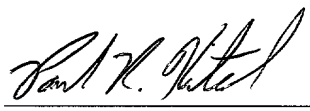
2/19/02 Maureen Hammond
Date Signature

Submitted herewith is one set of six (6) sheets of formal drawings (FIGS. 1 and 23-28), which should be substituted for the drawings presently in this application. Formal drawings were submitted with the application, however, some of them were objected to by the Official Draftperson in a prior application. Accordingly, corrected drawings for FIGs. 1 and 23-28 are being submitted herewith.

Applicant understands that no additional fees are required. Should any fee be deemed necessary, however, the Commissioner is hereby authorized to charge any additional fees which

may be required, or credit any overpayment, to Deposit Account No. 10/0447/47171-00300USC2. A duplicate copy of this Submission is enclosed for that purpose.

Respectfully submitted,



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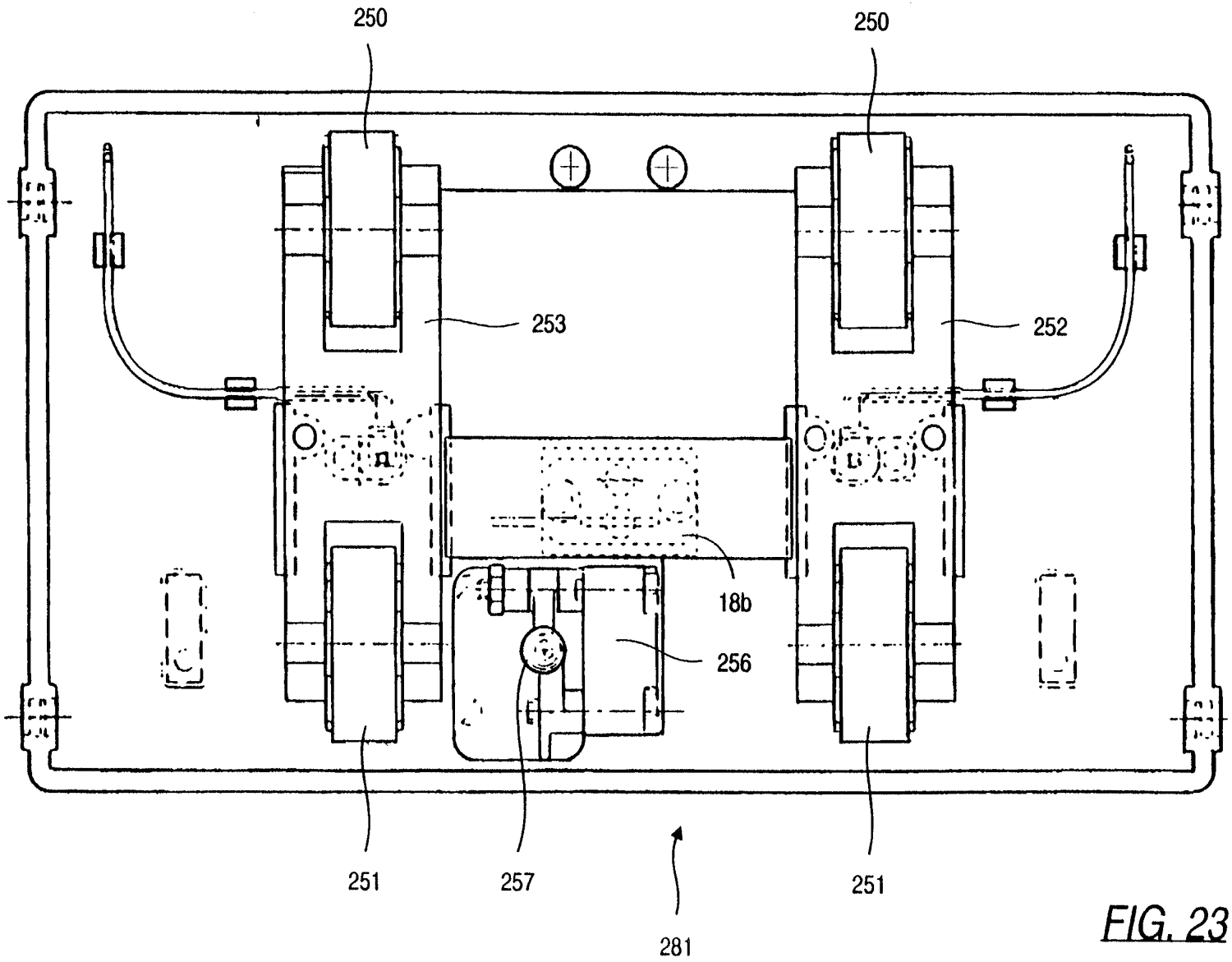


FIG. 23

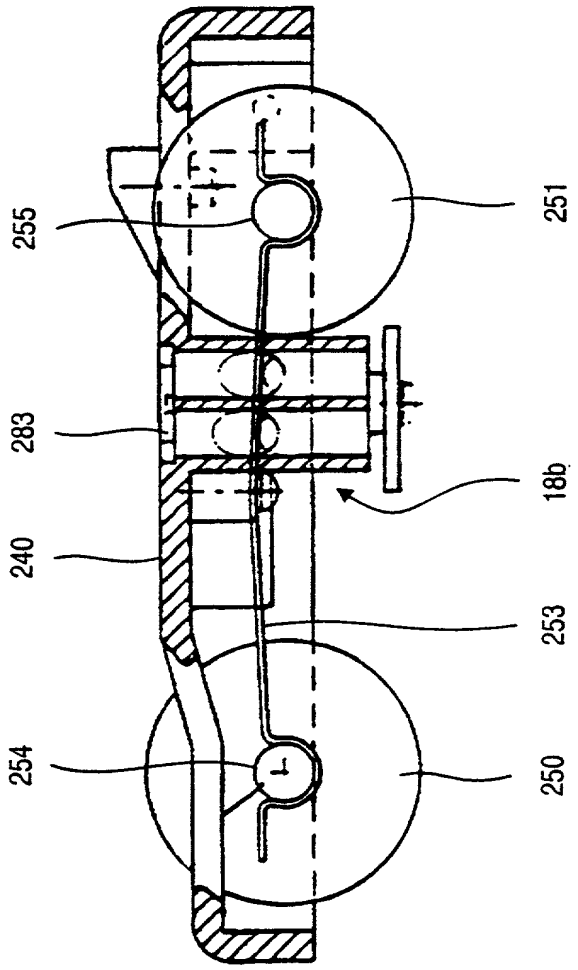
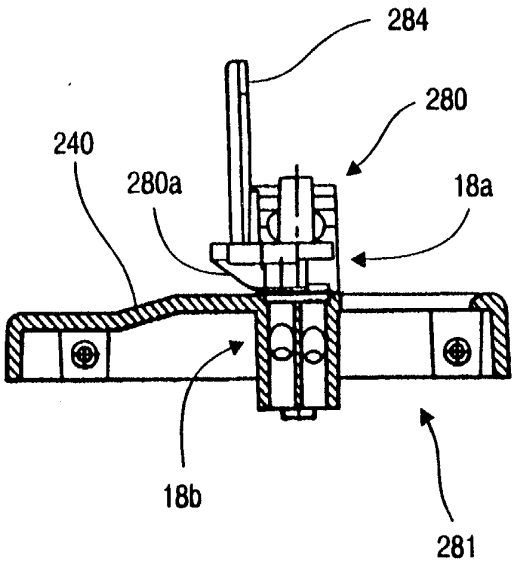


FIG. 24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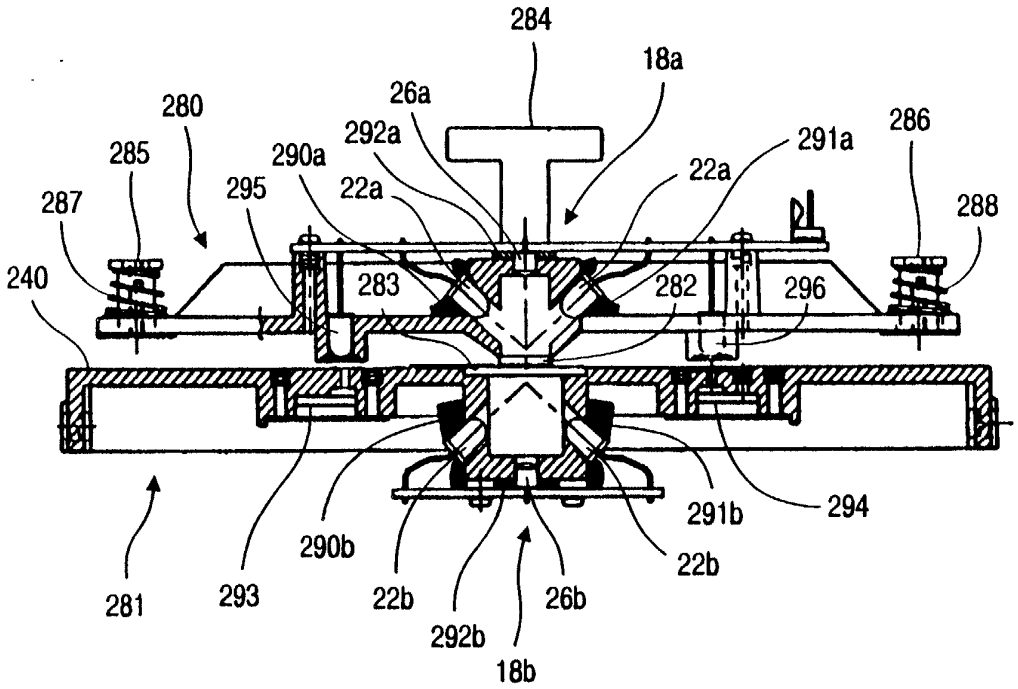
18b
281

FIG. 25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18b

FIG. 26

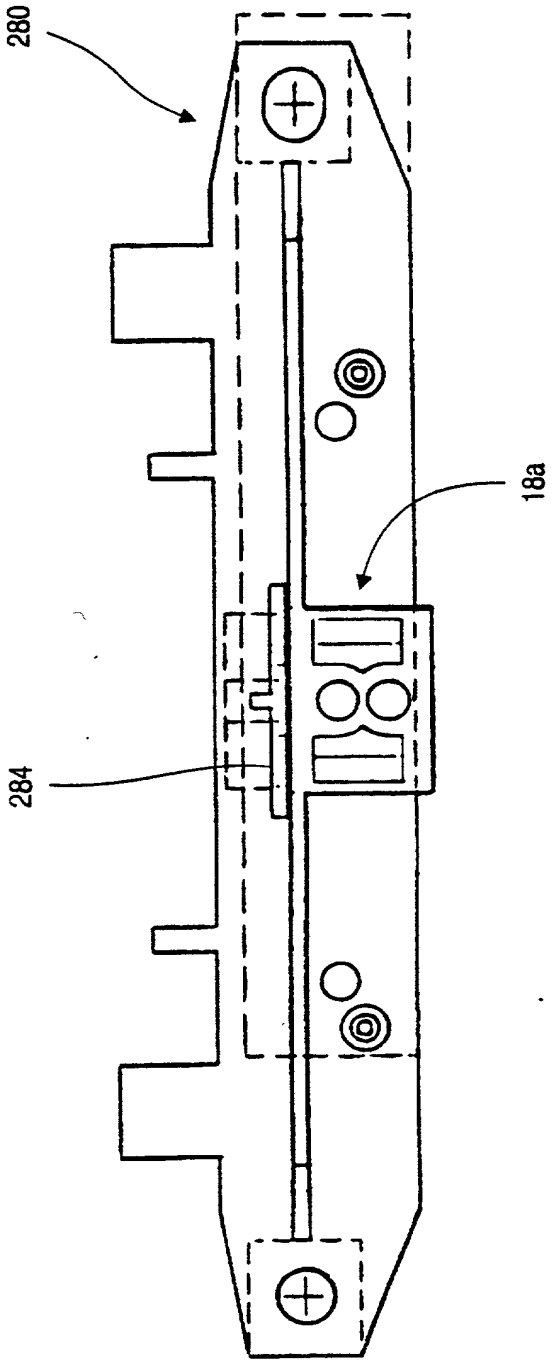

FIG. 27

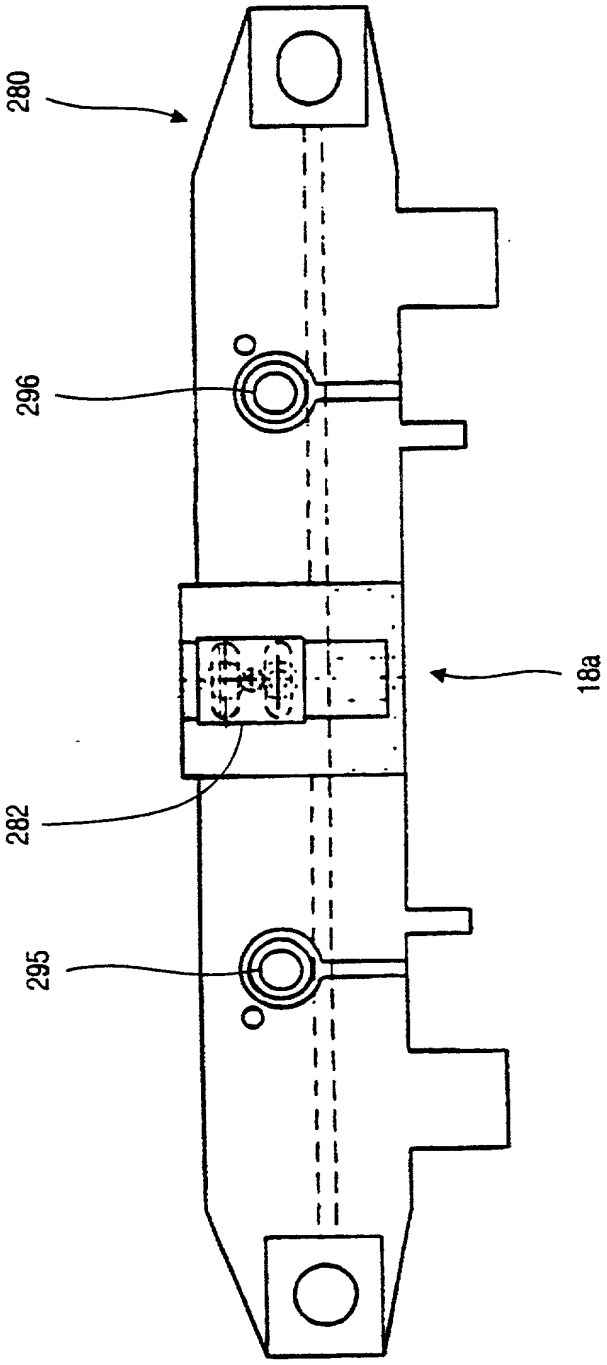

FIG. 28

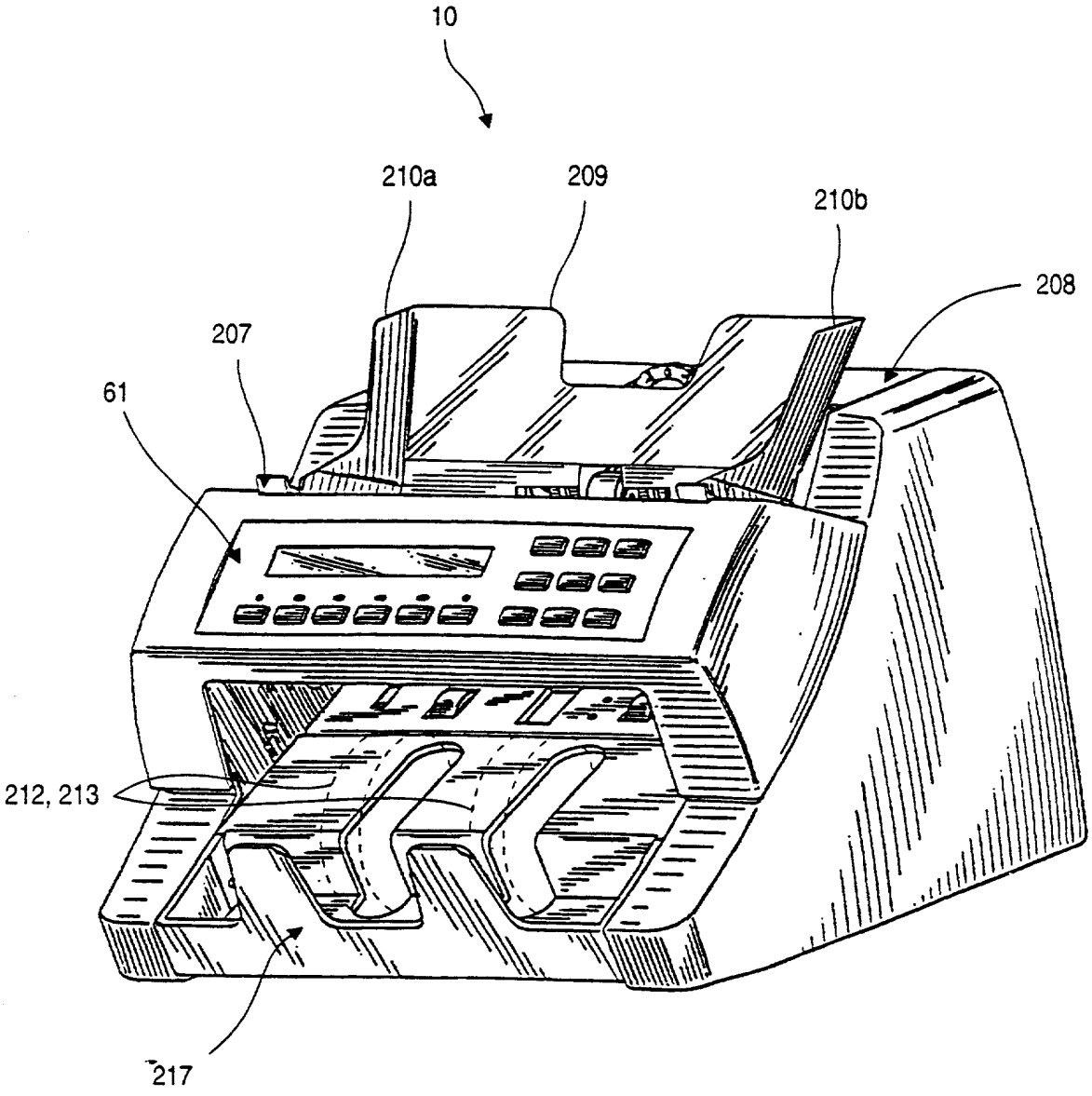

FIG. 1